**Day 2 Lab Assignments**

**Use [FacultySystemV2] DB the following assignments (Use GUI App for mongoDB):**

1. Using aggregation display the sum of final mark for all courses in Course collection.
2. Display the count of students (use Group by with \_id: null, to not specify grouping column).
3. Implement Embedded modeling between Student and Course, by adding array of Courses in the student object.
   * Write a query to select courses of specific student.
4. Implement referenced modeling (Manual references) between Student and faculty by adding the faculty id in student object.
   * Select specific student with his name, and then display his faculty.
5. In previous relation, use DbRefs and replace faculty id with faculty object containing $ref, $id.
   * Select specific student with his name, and then display his faculty.
6. Create unique index on FacultyName on the Faculty collection.
7. Create a dump of your database, and then restore it (Use mongodumb, mongorestore).

**Bonus:**

1. Use map reduce to display total mark in all courses for each student (You can add collection or edit in your collections to add students’ marks in each course).
2. Display students count in each faculty (group by faculty name, you may need to use $unwind – search for it).
3. Use Mongo atlas (MongoDB online server), to host your database, and install required client to connect to it.
4. Display each student Full Name along with his average grade in all courses.
5. Display Student data along with his faculty data (in one Object).
6. Retrieve and insert to MongoDB using a C# Desktop / Web application.
7. Install Redis database and try to insert and select data from it.